REMARKS

This amendment is being filed in response to the non-final Office Action dated October 30, 2007. By this Response, claims 3 and 4 are rewritten into independent form. Claims 2, 13 and 23 are amended to improve wording. Dependent claims 25 and 26 are newly added. No new matter is added.

The Office Action

The Examiner is thanked for the favorable indication that claims 3-12 are in condition for allowance if they are rewritten into independent form including all the limitations from their base claims. The Office Action rejects claim 14 and 15 under 35 U.S.C. §112, second paragraph as being indefinite. Claims 2, 19 and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ichikawa et al. (U.S. Publication No. 2002/0045981) in view of Kato et al. (U.S. Patent No. 6,059,068). Claims 14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ichikawa and Kato, and further in further view of Minowa et al. (U.S. Patent No. 5,902,345). The rejections are respectfully overcome in view of the amendments and/or remarks presented herein.

Claims 3-13 Are in Condition for Allowance

By this Response, claims 3 and 4 are rewritten into independent form as suggested by the Examiner, to achieve allowance. Claims 5-13, which depend from claims 3 and 4, respectively, also are in condition for allowance by virtue of their dependencies.

The Rejection under 35 U.S.C. § 112, second paragraph Is Moot

Claim 14 and 15 under 35 U.S.C. §112, second paragraph for lacking appropriate antecedent basis. By this Response, the claims are amended to remove language that lacks antecedent basis. It is submitted that the rejection under 35 U.S.C. §112, second paragraph is now moot.

The Rejections under 35 U.S.C. § 103(a) Are Overcome

1. The combination of Ichikawa and Kato fails to meet every limitation of claims 2, 19 and 21

The obviousness rejection of claims 2, 19 and 21 is respectfully overcome because Ichikawa and Kato, even if combined, do not do not meet every limitations claims 2, 19 and 21.

Claim 2 describes an intelligent driving assist system for a vehicle that calculates risk potential associated with the vehicle and provides warnings of the calculated risk potential by adjusting a reaction force applied to a steering device or an accelerator pedal. In an effort to address likely influence of a driver's sense or perception of warning from external influences, the system also detects an external influence and estimates its effects on an operation of the steering device or the accelerator pedal by the driver, and correct the modification of the reaction force of the steering device or the accelerator pedal, to convey the risk potential to the driver more effectively. For instance, when risk potential is high, a reaction force of the steering wheel or accelerator pedal may be increased to provide a haptic signal warning the driver of the driving risk. However, the effectiveness of this haptic warning signal is likely to be affected by external influences such as an uphill downhill driving condition. For example, when driving uphill, a driver usually depresses the accelerator pedal to increase engine output. In this scenario, it is easy for the driver to perceive an increased reaction force or resistance of the accelerator pedal which signals driving risk potential. On the other hand, when driving downhill, a driver usually releases the accelerator pedal to reduce engine output. In this releasing process, however, the driver would not be able to sense a regular increased reaction force easily. In this case, a system according to claim 21 will provide a larger reaction force pushing the accelerator pedal toward the driver, to more effectively inform the driver of the risk potential. See, for instance, page 13, lines 11-22, page 16, lines 4-16, expression 7 on page 20, expression 8 on page 21 and Figs. 4A-4D and related descriptions in the specification.

However, Ichikawa, even if modified by Kato, does not meet all the limitations of the claims.

a. Ichikawa and Kato do not calculate risk potential

Claim 2 specifically requires "a risk potential calculation device configured to calculate a risk potential present around the vehicle." Neither Ichikawa nor Kato meets this limitation.

Ichikawa relates to a dynamic control system intending to dynamically control a vehicle operation in view of different road surfaces (snowy, unpaved, wet, dry, etc.), by selectively enabling various subsystems including a front-rear traction distribution control unit for four wheel drive vehicles, an anti-lock brake, a traction control unit and a braking power control unit. Ichikawa's system utilizes CCD cameras 41R-41L and a calculation unit 45 to detect and calculate a condition of road surfaces. See paragraphs [0002], [0009], [0043]-[0045] and Fig. 1 of Ichikawa. However, the calculation unit 45 never calculates a risk potential presented around the vehicle as described in claim 2.

The other cited document, Kato, is related to a steering by wire apparatus that changes a reaction force applied to a steering wheel based on a steering angle, a vehicle speed or an overload condition, **to provide proper sense of road feedback**. While a speed sensor 6 is utilized for detecting a running speed of the vehicle, Kato has no interest in determining or calculating a risk potential of the vehicle with the speed. Rather, this detected speed is directly fed to steering control unit 4 for providing a corresponding reaction force to the steering wheel 2, to provide smooth sense of steering operation. See col. 4, ln. 45 through col. 5, ln. 2, Figs. 1 and 2 of Kato. No risk potential is ever calculated by Kato.

b. Neither Ichikawa nor Kato provides a warning signal of the calculated risk potential by modifying a reaction force applied to a steering device or an accelerator pedal

As discussed earlier, Ichikawa relates to dynamically controlling a vehicle operation in view of different detected road surfaces by selectively enabling various subsystems, and Kato pertains to a steering-by-wire apparatus. Both Ichikawa and Kato fail to calculate a risk potential associated with a vehicle. As no risk potential has ever been calculated by either Ichikawa or Kato, it is apparent that no information related to risk potential is ever conveyed to the driver by Ichikawa or Kato's system, let alone the unique manner to convey risk information by adjusting reaction force characteristics of a steering device or an accelerator pedal.

Applicants note that Kato, incidentally, modifies a reaction force to a steering wheel 2 (col. 4, ln. 64 through col. 5, ln. 3 of Kato). However, this type of change in reaction force is known in the field of steering-by-wire and is merely used to **provide road feedback**. Kato never discloses the calculation of risk potential and the conveyance of the calculated risk potential to the driver by modifying a reaction force applied to a steering wheel or an accelerator pedal, as described in claim 2.

c. The combination of Ichikawa and Kato does not disclosé an external influence detection device configured to detect an external influence which will affect an operation of the steering device or the accelerator pedal by a driver; and a reaction force correction device configured to correct the reaction force characteristics of the steering device or the accelerator pedal adjusted by the reaction force adjustment device, based upon detection results obtained by the external influence detection device

The Office Action correctly acknowledged that Ichikawa does not disclose a reaction force adjustment device, an external influence detection device and a reaction force correction device. The other cited document, Kato, shares the same deficiencies as Ichikawa.

The Office Action contended that Kato purportedly alleviates the deficiencies of Ichikawa because vehicle speed sensor 6 purportedly corresponds to the claimed external

influence detection device and that the detected speed is used to correct a reaction force which is used to convey information related to a calculated risk potential. This analogy is misplaced.

As discussed earlier, Kato does not calculates a risk potential and accordingly does not convey any calculated risk potential by means of a modified reaction force. Even if Kato includes a speed sensor 6 to detect a vehicle speed and modifies a reaction force of a steering wheel, this change has nothing to do with conveying information related to risk potential **and** any external influence which will affect an operation of the steering device or the accelerator pedal, as described in claim 2.

Since the combination of Ichikawa and Kato fails to disclose every limitation of claim 2, the obviousness rejection based on Ichikawa and Kato is untenable and should be withdrawn.

Claims 19 and 21 and new claims 24 and 25, directly or indirectly, depend on claim 2. Since claim 2 is patentable over the combination of Ichikawa and Kato, claims 19, 21, 24 and 25 are also patentable by virtue of their dependencies.

2. The combination of Ichikawa, Kato and Minowa fails to meet every limitation of claims 14 and 15

Independent claim 14 includes limitations substantially similar to those of claim 2, and specifically describes that the external influence detection device detects a driver's perception of a reaction force generated at the steering device or the accelerator pedal as the external influence; and the external influence detection device detects a state of depression of the accelerator pedal to judge the driver's perception, wherein the external influence detection device judges the driver's perception to be acute if an extent to which the accelerator pedal is depressed is being increased and judges the driver's perception to be dull if the extent of depression is being decreased.

For the same reasons as discussed earlier related to claim 2, the combination of Ichikawa and Kato fails to disclose "a risk potential calculation device configured to calculate a risk

potential present around the vehicle based upon detection results obtained by the traveling condition recognition device; a reaction force adjustment device configured to adjust reaction force characteristics of a steering device or an accelerator pedal to convey information related to the calculated risk potential to a driver of the vehicle, based upon the risk potential calculated by the risk potential calculation device; an external influence detection device configured to detect an external influence which will affect an operation of the steering device or the accelerator pedal by the driver; and a reaction force correction device configured to correct the reaction force characteristics of the steering device or the accelerator pedal adjusted by the reaction force adjustment device, based upon detection results obtained by the external influence detection device. The Office correctly acknowledged that the combination of Ichikawa and Kato also fails to disclose the external influence detection device detects a driver's perception of a reaction force generated at the steering device or the accelerator pedal as the external influence, and that the external influence detection device detects a state of depression of the accelerator pedal to judge the driver's perception, wherein the external influence detection device judges the driver's perception to be acute if an extent to which the accelerator pedal is depressed is being increased and judges the driver's perception to be dull if the extent of depression is being decreased.

Minowa does not alleviate these deficiencies. Moreover, contrary to the Examiner's assertion, Minowa further fails to disclose that "the external influence detection device detects a driver's perception of a reaction force generated at the steering device or the accelerator pedal as the external influence, and that the external influence detection device detects a state of depression of the accelerator pedal to judge the driver's perception, wherein the external influence detection device judges the driver's perception to be acute if an extent to which the accelerator pedal is depressed is being increased and judges the driver's perception to be dull if the extent of depression is being decreased," as described in claim 14

As characterized by the Examiner, Minowa relates to "a system/method for control[ing] power train of a motor vehicle including an acceleration/detection detector unit [that] detects an accelerat[ion] by detector a positive accelerator pedal depression by a driver, and detects deceleration by detecting a negative acceleration depression by the driver." Pages 5 and 6 of the Office Action.

Apparently, Minowa is only interested in modifying engine output based on an operation of an accelerator pedal and has nothing to do with detecting a driver's perception of a reaction force generated at the steering device or the accelerator pedal, as described in claim 14.

Furthermore, Minowa lacks the specific description that "wherein the external influence detection device judges the driver's perception to be acute if an extent to which the accelerator pedal is depressed is being increased and judges the driver's perception to be dull if the extent of depression is being decreased," as described in claim 14.

The combination of Ichikawa, Kato and Minowa, at most, disclose a vehicle with a system that dynamically adjusts traction distribution and brake in view of road conditions (Ichikawa), a steering by wire steering apparatus (Kato), and a dynamic control of engine output according to a depression condition of an accelerator pedal (Minowa). However, the alleged combination fails to meet the claimed limitations as discussed above. Accordingly, claim 14 is patentable.

Claim 15 depends on claim 14 and hence is also patentable based on its dependency.

Request for Reconsideration of Restriction Requirement

Reconsideration of the restriction requirement related to claim 23 is respectfully requested. Method claim 23 has claim limitations closely track claim 2 and is **not materially different** from the invention described in claim 2. The apparatus described in claim 2 cannot be used to practice a process materially different from that covered by claim 23, and the process covered by claim 23

cannot be performed by an apparatus that is materially different from an apparatus covered by claim 2. If the apparatus covered by claim 2 can be used to perform a process of controlling the stability of a vehicle as previously suggested by the examiner, likewise, claim 23 can be used to implement a process for controlling the stability of a vehicle because claim 23 closely tracks the language of claim 2.

In response to Applicants election with traverse filed on August 15, 2007, the Office Action responded that "[s]ince applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits;" and cited MPEP §821.03 as authority. Page 2 of the Office Action.

It is respectfully submitted that MPEP §821.03 is not applicable to the fact pattern of this application because MPEP §821.03 governs new claims that are "**independent or distinct** from the invention originally claimed", **not** claims that are **not distinct and not materially different** from the original claims (as the case of claim 23). ("Claims added by amendment following action by the examiner...to an invention **other** than previously claimed, should be treated as indicated by 37 CFR 1.145 ("If, after an office action on an application, the applicant presents claims directed to an invention **distinct** from and **independent** of the invention previously claimed, the applicant will be required to restrict the claims to the invention previously claimed.")) Emphases added. See MPEP §821.03. **Since claim 23 is not directed to a distinct or independent invention from that of claim 2, MPEP §821.03 and 37 CFR 1.145 do not apply**. Therefore, the restriction is improper. Continued examination of claim 23 is respectfully requested.

Third Request for Acknowledgement of Prior Art

Incidentally, it was noted that the Office Action dated July 11, 2005 attached various PTO-1449 forms with Examiner's initials confirming considerations of publications that were previously submitted by Applicant. However, as pointed out in Applicant's responses dated Oct.

11, 2005 and again November 20, 2006, **the Examiner's initial was not provided for U.S. Published Patent Application No. 2001/0003810 A1. It is respectfully requested that consideration of U.S. Published Patent Application No. 2001/0003810 A1 be specifically acknowledged, and an appropriately initialed PTO-1449 form be furnished.**

CONCLUSION

For the reasons given above, Applicant believes that this application is in condition for allowance, and request that the Examiner give the application favorable reconsideration and permit it to issue as a patent. If the Examiner believes that the application can be put in even better condition for allowance, the Examiner is invited to contact Applicant's representatives listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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